ATEC Console Preventive Maintenance

Preventive Maintenance Procedure **Console S/N** _____

Scope:

This section is to be used to accomplish all preventive maintenance check tasks once the pre-service evaluation and decontamination have been completed.

Tools & Materials:

ATEC Service Manual
#1 Philips screwdriver
3/32", 7/64", 5/32" Hex wrenches
Needle Nose Pliers
7mm open end wrench
Threadlocker Loctite® 222
1/4" drive torque wrench 10-50 in/lbs
1/4" torque driver 5-35 in/lbs
Diagonal cutters
Razor knife

Notes:

All steps to be accomplished with console power off and power cord disconnected from the wall outlet.

Procedure:

☐ Remove and discard drainage sponges (2) below AF20 filter housings.
Press down on sponge to clear the bottom of the AF20 filter and pull out of console.

☐ Remove filter bowls from (2) AF20 filter housings.
Unscrew filter bowl assembly from compressor outlet (left); discard bowl and retainer cage if it is a polycarbonate (clear) bowl. Retain bowl for reinstallation if it is a one piece aluminum bowl.
Remove and retain polycarbonate filter bowl and retainer cage from footswitch return line (right.)
Clean footswitch line filter bowl if there is any debris or condensate.
Do not install components at this time.

☐ Remove and discard (2) AF20 filter elements.
Use #1 Philips bit to remove the retaining screw below the elements.
Retain screws and black discs; note position of discs they are directionally specific.
Do not install new filter elements at this time.

☐ Remove center shelf assembly and retain hardware for reinstallation.
Mark all pneumatic tubing and electrical lines to be disconnected to facilitate reinstallation.
Disconnect electrical connectors (3) from 5-port valves located on top of the pneumatic manifold.
Disconnect the following pneumatic lines between top center shelf and right shelf components.
Vacuum pump line from back of pneumatic manifold.
Footswitch line from T at cylinder (center) regulator.
US/STX air motor line between regulator (right) and front AF10 filter; **Sapphire** consoles only.
Cylinder out line from manifold to the upper needle valve port.
Cylinder return line between lower needle valve port and manifold; do not change orientation of check valve located in the cylinder pressure return line.
Vacuum line at T next to vacuum switch.
US/STX or MRI air motor line between manifold and rear AF10 filter.
Use 5/32" Hex wrench to remove (4) center shelf screws and lock washers.
Disconnect main regulator lines (2) from regulator below center shelf.
Remove center shelf assembly and set shelf aside for component replacement.
Pull shelf straight out and lift as needed to clear vacuum pump and compressor.
Use caution to avoid damaging wires behind and to the right of the center shelf when removing.

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☐ Remove and discard vacuum switch assembly (in stiffening bracket).
- Disconnect wires (2) from the vacuum switch; needle nose pliers may be needed.
- Disconnect vacuum tubing at the in line reducer between switch assembly and bulkhead fitting.
- Use 3/32" Hex wrench to remove (2) fasteners through the vacuum switch housing; discard fasteners.
- Use 7/64" Hex wrench to remove fastener through the vacuum T connector; discard fastener.
- Remove and discard vacuum switch and stiffening bracket assembly; retain tubing section that runs between T and bulkhead.

☐ Remove and discard vacuum switch (not mounted in stiffening bracket).
- Disconnect wires (2) from the vacuum switch; needle nose pliers may be needed.
- Disconnect vacuum tubing at the in line reducer between switch T and bulkhead fitting.
- Use 3/32" Hex wrench to remove (2) fasteners through the vacuum switch housing; discard fasteners.
- Use 7/64" Hex wrench to remove fastener through the vacuum T connector if installed; discard fastener and spacer below T fitting.
- Remove and discard vacuum switch and T fitting; retain tubing section to bulkhead fitting.
- Remove Poron foam pad below T fitting if installed and clean any remaining glue from shelf surface.

☐ Remove/loosen right shelf assembly.
- Disconnect wires (2) from the pressure switch; needle nose pliers may be needed.
- Use 5/32" Hex wrench to remove the ground wire from the front of the right shelf; retain hardware.
- Use 5/32" Hex wrench to remove the remaining right shelf fastener and retain.
- Complete removal of the right shelf is not required but may be accomplished for ease of maintenance.
- If completely removing right shelf assembly; disconnect buzzer from shelf prior to removing.
- Disconnect the following pneumatic tubing.
  - Footswitch line in line to the AF20 filter housing.
  - Footswitch line from the output of the AF20 filter housing.
  - US/STX air motor line from front AF10 filter; **Sapphire** consoles only.
  - US/STX or MRI air motor line from rear AF10 filter.
  - Cylinder pressure line from pressure switch T to panel connector.

☐ Check compressor and vacuum pump mounts for wear and damage.
- Press down on vacuum pump and inspect mounts for tearing; looking from the bottom of the console.
- Press down on compressor and inspect mounts for tearing; looking from the bottom of the console.
- If any of the mounts are damaged; replace all mounts per applicable section of the service manual.
  - Mount replacement components not included in preventive maintenance kit.

☐ Inspect all electrical wiring for damage or chaffing; repair or replace as required.

☐ Inspect all pneumatic tubing for kinking, damage and security in fittings; replace as needed.

☐ Replace pressure switch.
- Use 3/32" Hex wrench to remove (2) fasteners through the pressure switch housing; reuse fasteners.
- Disconnect pneumatic pressure line from T fitting and discard pressure switch.
- Install new pressure switch.
  - Connect pneumatic pressure tube to T fitting.
  - Use 3/32" Hex wrench to install (2) fasteners through the pressure switch housing and secure.

☐ Replace AF10 filter assembly(s)
- Replace rear AF10 filter assembly.
  - Use cutters to cut tie wrap holding filter in place and remove tie wrap.
  - Slide filter out of bracket.

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Replace AF10 filter assembly(s); continued from previous page.
- Use 7mm open end wrench to remove the 90deg elbows (2) from the removed filter.
- Install retained elbows on new filter housing from PM kit; do not over tighten.
- Note position markings in the grooves on the filter housing; IN and OUT.
- Place filter assembly into place on shelf bracket; the OUT side of the filter assembly must face towards the side panel and the IN side faces the pneumatic manifold when shelf is installed.
- Secure filter assembly with tie wrap and cut off excess wrap material.

Replace front AF10 filter assembly per previous instructions; **Sapphire** consoles only.

☐ Clean any debris from the inside of the console.

☐ Install right shelf assembly.

If removed; reinstall buzzer to shelf assembly.
- Secure buzzer so that the red power line (+) faces the center of the console

Connect and verify security of the following pneumatic tubing.
- Footswitch line to the output of the AF20 filter housing.
- Footswitch line in line to the AF20 filter housing.
- Cylinder pressure line to pressure switch T to panel connector.
- US/STX air motor line to front AF10 filter; **Sapphire** consoles only.
- US/STX or MRI air motor line to rear AF10 filter.

Connect wires (2) to the pressure switch.

Use 5/32" Hex wrench to connect the ground wire to the front of the right shelf; do not fully tighten.

Use 5/32" Hex wrench to install the other right shelf fastener; do not fully tighten.

☐ Install vacuum switch assembly in stiffening bracket; all console configurations.

Transfer vacuum tubing from T fitting of removed assembly to new assembly or install new section.

Remove nylon wing nuts from bottom of new switch assembly; do not remove fasteners or T spacer.

Slide vacuum switch assembly into position on the right shelf

Use 7/64" Hex wrench to install fastener through the vacuum T connector and spacer; secure.

Use 3/32" Hex wrench to install (2) fasteners through the vacuum switch housing; secure.

Connect vacuum tubing and verify security at reducer between switch assembly and bulkhead fitting.

Connect wires (2) to the vacuum switch.

☐ Replace air motor and cylinder 5-Port valves.

Use #1 Philips screwdriver to remove fasteners from air motor valve (rear); retain fasteners.

Remove and discard air motor valve and slotted gasket for the valve to spacer gap.
- Retain the spacer and the gasket for the spacer to manifold gap.
- Verify the spacer gasket is slotted on both ends at the pilot pressure holes.

Clean any contaminant from valve spacer and verify serviceability of slotted gasket for spacer.

Install new air motor 5-Port valve from PM kit.
- Place gasket onto lower surface of valve; verify proper orientation.
- Insert retained fasteners through new valve.
- Verify gasket is in place between valve spacer and manifold.
- Place valve in position on spacer with fasteners through proper holes in the spacer.
- Secure valve and spacer to manifold.
- Tighten valve fasteners alternatively to bring valve down flush onto spacer.
- Torque fasteners to 7 in/lbs

Replace cylinder (center) valve per previous instructions.

Do not remove vacuum (front) 5-port valve; pressure and vacuum valves are not interchangeable.

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☐ Replace vacuum valve orifice silencer (if installed).
Remove silencer by hand and install new silencer from PM kit; hand tighten to secure.

☐ Install center shelf assembly with retained hardware.
Place shelf in position in the console.

Slide shelf straight in and down as needed to clear vacuum pump and compressor.
Use caution to avoid damaging wires behind and to the right of the center shelf when installing.
Connect main regulator lines (2) to the regulator below the center shelf and verify security.
Use 5/32" Hex wrench to loosely install front (2) center shelf fasteners; do not fully tighten.
Use 5/32" Hex wrench to install (2) rear center shelf fasteners.
Secure all center shelf (4) and right shelf (2) fasteners; torque to 25 in/lbs.
Connect the following center shelf pneumatic lines and verify security.
US/STX or MRI air motor line between manifold and AF10 filter.
Vacuum line at T next to vacuum switch.
Cylinder return line between lower needle valve port and manifold; do not change orientation of check valve located in the cylinder pressure return line.
Cylinder out line from manifold to the upper needle valve port.
US/STX air motor line between regulator (right) and AF10 filter; **Sapphire** consoles only.
Footswitch line from T at cylinder (center) regulator.
Vacuum pump line to back of pneumatic manifold.
Connect electrical connectors (3) to 5-port valves located on top of the pneumatic manifold.

☐ Install (2) AF20 filter elements on footswitch line and compressor output.
Place black discs on filter element in the proper position and fastener in position through element.
Apply one drop of Loctite 222 to the last few threads of fastener.
Use #1 Philips bit to secure the retaining screw; do not over tighten or distort element.

☐ Install retained footswitch line AF20 filter bowl and retainer cage.
Check filter bowl O-ring and bowl for damage and replace if needed.
Place filter bowl into position on the footswitch line filter housing.
Install filter bowl cage over bowl and secure; verify the cage is fully tightened and the drain portion of the bowl is properly positioned and protruding through the bottom of the cage.

☐ Install aluminum filter bowl on AF20 filter housing at the compressor output.
Obtain filter bowl from PM kit and verify O-ring is in place and serviceable.
Thread filter bowl into filter housing until secure.

☐ Install drainage sponges below AF20 filter housings.
Use razor knife to make a 1" incision in the top and bottom of each new sponge.
Center each sponge above threaded stud in base plate and center top under drain port of filter bowls.
Verify there is clearance between compressor sponge and all wiring.

Notes: _____

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Completed By: _____ **Date:** _____

Continue procedure on post-service checks and adjustments checklist.